Paper No. 32

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte JAMES MICHAEL MRVOS
and
ASHOK MURTHY

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Appeal No. 2002-0643
Application No. 09/100,538

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ON BRIEF

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Before KIMLIN, LIEBERMAN, and DELMENDO, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 (2003) from the examiner's final rejection of claims 1, 3 through 5, 12, 14 through 16, and 23 through 28 (final office action, paper 27), which are all the claims pending in the above-identified application.

The subject matter on appeal relates to a heater chip module (claims 1 and 3-5), a flexible circuit/heater chip module assembly (claims 12, 14-16, and 23-25), and an ink jet print cartridge (claims 26-28). According to the appellants (appeal brief filed Jul. 27, 2001, paper 29, page 2), the claimed heater chip module is mounted in a cavity of a single layer metal (i.e., steel, aluminum, copper, zinc, nickel, and alloys thereof) substrate, which provides a dissipation path for heat generated by the heater chip. Further details of this appealed subject matter are recited in representative claim 1 reproduced below:

> 1. A heater chip module comprising:
> a rigid carrier secured to a container for receiving ink and including a substantially rigid, single layer metal support section, said metal being selected from the group consisting of steel, aluminum, copper, zinc, nickel and alloys thereof;
> a heater chip within an inner cavity formed within said metal support section and coupled to said metal support section at the bottom of said cavity, said metal support section including at least one passage which defines a path for ink to travel from the container to said inner cavity of said heater chip; and
> a nozzle plate coupled to said heater chip, wherein said carrier provides a dissipation path for heat generated by said heater chip.

The examiner relies on the following prior art references as evidence of unpatentability:

Hanson	4,635,073	Jan. 6, 1987
Eldridge et al. (Eldridge)[1]	4,791,440	Dec. 13, 1988
Komuro et al. (Komuro)	4,881,318	Nov. 21, 1989
Braun	4,942,408	Jul. 17, 1990
Fukuda et al. (Fukuda)	5,066,964	Nov. 19, 1991
Oda et al. (Oda)	5,552,816	Sep. 3, 1996

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

I. claims 1, 3, 4, 12, 14, 15, 23, 26, and 27 as unpatentable over Braun, Oda, and Fukuda (answer, page 3);

II. claims 5, 16, 21, and 28 as unpatentable over Braun, Oda, Fukuda, and Eldridge (id. at page 5);

III. claim 24 as unpatentable over Braun, Oda, Fukuda, and Komuro (id.); and

[1] Eldridge is not listed in the "Prior Art of Record" section of the answer (examiner's answer mailed Sep. 12, 2001, paper 30, pp. 2-3) but is relied upon as evidence in a rejection (p. 5).

IV. claim 25 as unpatentable over Braun, Oda, Fukuda, and Hanson (id.).

We affirm these rejections.[2]

Braun describes a print/cartridge construction including a fluid block 50 (i.e., a rigid carrier) that is secured to a container for receiving ink, a drop ejection chip 60 having resistive heater elements 64 disposed within a recess of the fluid block 50 (i.e., a heater chip within an inner cavity of the fluid block 50), and an orifice plate 80 (i.e., nozzle plate). (Figures 1 and 3A-3E; column 1, line 59 to column 2, line 18; column 3, line 58 to column 4, line 29.) Braun further suggests that a heat sink element may be disposed between the chip and the fluid block component to control the chip substrate temperature. (Column 4, lines 35-41.)

Thus, Braun differs from the subject matter of appealed claim 1 in that it does not disclose the use of a metal such as steel, aluminum, copper, zinc, nickel, or alloys thereof as the material for constructing the heat sink element.

[2] The appellants state that "[a]ll of the pending claims are deemed for purposes of this appeal to stand and [sic, or] fall with claim 1" and, in fact, rely on the same arguments for all four grounds of rejection. (Appeal brief, pp. 4-5.) Under these circumstances, we confine our discussion to the invention recited in appealed claim 1. 37 CFR §§ 1.192(a), c(7) and c(8) (1995, 1997).

To dissipate heat caused by the ejection-energy generating element, Fukuda teaches the use of a heat-capacity member (e.g., a metal having a high thermal conductivity such as copper, aluminum, bronze, beryllium, nickel, platinum, stainless steel, and steel) in contact with the heat generating substrate. (Column 1, lines 10-54; column 4, lines 51-53; column 6, lines 8-25.)

Given these prior art disclosures, we are in complete agreement with the examiner's determination that the subject matter of appealed claim 1 would have been obvious to a person having ordinary skill in the art within the meaning of 35 U.S.C. § 103. Specifically, it is our judgment that one of ordinary skill in the art would have been led to combine the teachings of these references by modifying Braun's product to include Fukuda's heat capacity member (i.e., a heat sink element) made from a material such as steel, stainless steel, aluminum, copper, or nickel in order to avoid the problems associated with heat generated by the heater chip.

The appellants' arguments (appeal brief, pages 4-5) incorrectly focus on the teachings of Oda. We note, however, that Oda's teachings are not necessary to support the examiner's rejection of appealed claim 1.

Because the appellants have failed to rebut the examiner's prima facie case of obviousness, we affirm the examiner's rejections under 35 U.S.C. § 103(a) of: (i) claims 1, 3, 4, 12, 14, 15, 23, 26, and 27 as unpatentable over Braun, Oda, and Fukuda; (ii) claims 5, 16, 21, and 28 as unpatentable over Braun, Oda, Fukuda, and Eldridge; (iii) claim 24 as unpatentable over Braun, Oda, Fukuda, and Komuro; and (iv) claim 25 as unpatentable over Braun, Oda, Fukuda, and Hanson.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Edward C. Kimlin Administrative Patent Judge	)	
Paul Lieberman Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Romulo H. Delmendo Administrative Patent Judge	)	

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